

# Update on Modern Streetcar Study



Presented at the Modern Streetcar Public Meetings

By the  
Planning and Development Department

November 17-19, 2008

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## Purpose of Today's Public Meeting

- Provide an update on the work of the Modern Streetcar **Study Committee**.
- Provide an overview of the **Study Committee's next steps**.
- Answer questions and receive **public comments**.



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## What is the Modern Streetcar Study Committee?

It is an 18-member committee appointed by the City Council in July to examine the **feasibility** of modern streetcars for Fort Worth.



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## Modern Streetcar Study Committee

### Mayor Appointees

Andy Taft, President, Downtown Fort Worth, Inc. (Chair)

Louise Appleman, Tarrant County College Board of Trustees

Johnny Campbell, Sundance Square Management

Ed Casebier, Greater Fort Worth Real Estate Council

Marvinell Johnson, Rolling Hills

Fran McCarthy, Central City Redevelopment Committee

Phillip Poole, Central City Redevelopment Committee Transit Sub-Committee



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## Modern Streetcar Study Committee (cont.)

### Council Member Appointees

Dr. Carlos Vasquez, Fort Worth ISD Board Member (District 2)

Don Scott (District 3)

Bob Riley (District 4)

Dennis Dunkins (District 5)

Bob Parmelee, Chair, The T Board of Directors (District 6)

Bill Cranz, Plains Capital Bank (District 7)

Janet Saltsgiver (District 8)

Jeff Davis (District 9)

### Ex-Officio Members

Michael Morris, NCTCOG Transportation Director

Judge Glen Whitley, Tarrant County Judge

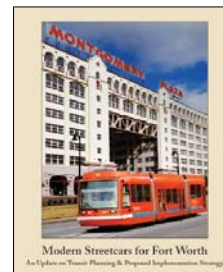
David Dubois, Fort Worth Convention and Visitor's Bureau

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## How did we get here?

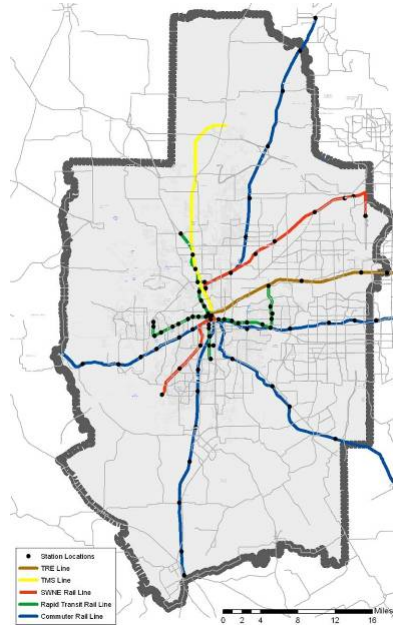
The community has called for improved **public transit** and continued **economic development** through:

- Comprehensive Plan community meetings
- Annual citizens survey
- *Let's Talk Fort Worth*
- Central City Redevelopment Committee report



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# Mobility and Air Quality Plan



### Typical Characteristics

**Power source:** Diesel or diesel-electric engine

**Peak frequency: 30-60 minutes**

**Cost per mile: \$5-20 million**



## Light Rail

### Typical Characteristics

**Station spacing:** 0.5 to 2 miles

**Power source:** Overhead electric

**Right-of-way:** Dedicated

**Peak frequency:** 10-30 minutes

**Cost per mile:** \$30-70 million



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## Bus Rapid Transit

### Typical Characteristics

**Station spacing:** Varies

**Power source:** Bus engine or overhead electric

**Right-of-way:** Dedicated or shared with automobiles

**Peak frequency:** 10-30 minutes

**Cost per mile:** \$2-25 million



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## Modern Streetcar

### Typical Characteristics

**Station spacing:** 2 to 4 blocks

**Power source:** Overhead electric

**Right-of-way:** Dedicated or shared with automobiles

**Peak frequency:** 10-15 minutes

**Cost per mile:** \$16-40 million



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## Why Streetcars? DEVELOPMENT OPTIONS

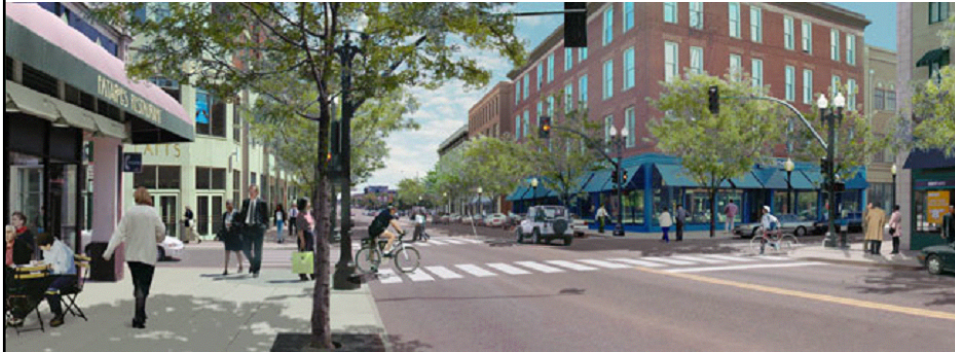


An auto-oriented, low intensity, single-use **commercial corridor**, or...

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# Why Streetcars?

## DEVELOPMENT OPTIONS

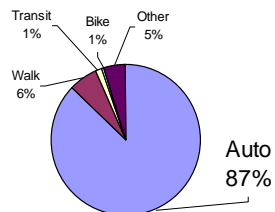


A pedestrian-oriented, higher intensity, **mixed-use district**?

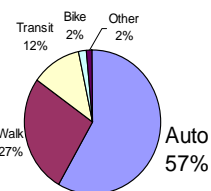
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# Why Streetcars?

- High density, **mixed-use** environment



Poor Transit, No Mixed Use



Good Transit, Good Mixed Use

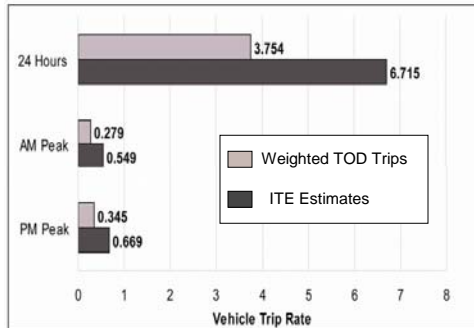


Source: Portland Metro Travel Survey, 1994 14

## Why Streetcars?

- Fewer vehicle **trips** leads to less parking needed, reduced traffic congestion and improved **air quality**

TOD Vehicle Trips vs. ITE Manual Estimates



Source: "Effects of TOD on Housing, Parking, and Travel" Transit Cooperative Research Program, 2008 15

## Why Streetcars?

- Efficient use of **land**

Land Consumption by Development Type

	Streetcar Alignment	Suburban Environment
Household Units	7,248	7,248
Units per Acre	137	7.8
	Average realized units per building	Average lot size of 5,600 square feet
Acres Required	53	932
Acres Saved	<b>879 and growing</b>	



Urban



Suburban

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Source: E.D. Hovee & Company, 2008

## Why Streetcars?

- Efficient use of existing **infrastructure**

Streetcar Oriented Infill Development  
vs. Auto Oriented Suburban Development

	Streetcar Alignment	Suburban Environment	
Number of new households	7,248	24,952	
Public investment	Actual	High	Low
Transportation infrastructure	\$103,200,000	\$2,800,000,000	\$1,900,000,000
Cost per household	<b>\$14,000 and falling</b>	\$112,000	\$76,000



Urban



Suburban

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Source: E.D. Hovee & Company, 2008

## Why Streetcars?

- **Economic Development**

Four significant economic effects seen:

1. Expanding the customer base and customer access for existing businesses
2. Improving the market value of real estate
3. Catalyzing “truly urban” Transit-Oriented new development...greater density, less parking
4. Expanding the area which can support “walkable urbanism”

Source: HDR, Inc.

# Why Streetcars?

- Economic Development – Density (cont.)



Source: HDR, Inc. 19

## Why Streetcars?

- **Economic Development** The most development occurs closest to the route



## Why Streetcars?

- Urban lifestyle



## Pearl District Before...



Source: HDR, Inc. 22

## Pearl District

...And After



Source: HDR, Inc. 23

## Study Committee: Phase 1 Tasks

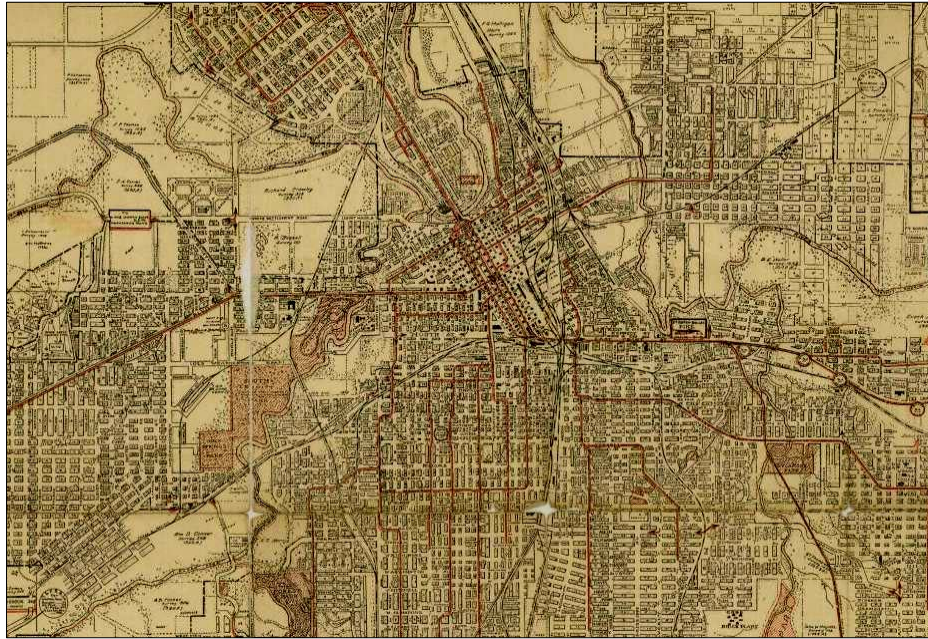
Committee tasks:

- Review Fort Worth's **previous streetcar studies**;
- Review streetcar systems in **peer cities**;
- Conduct a preliminary assessment of **costs and benefits**, including potential **funding** sources; and
- Determine if the streetcar system is **worth pursuing** at this time.



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## Fort Worth Streetcars – 1925 Route Map

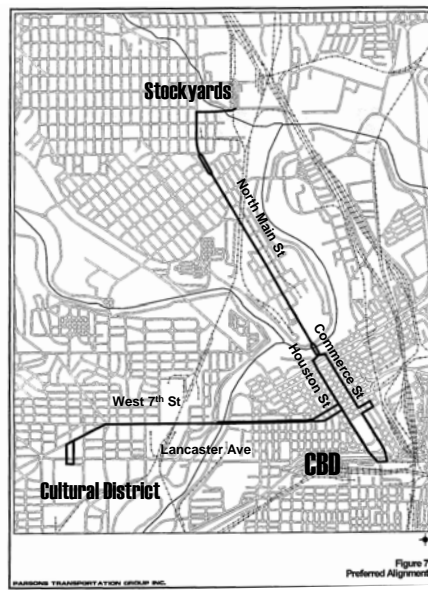


## Fort Worth Fixed-Rail Trolley Line Feasibility Study

1998

2002

2008



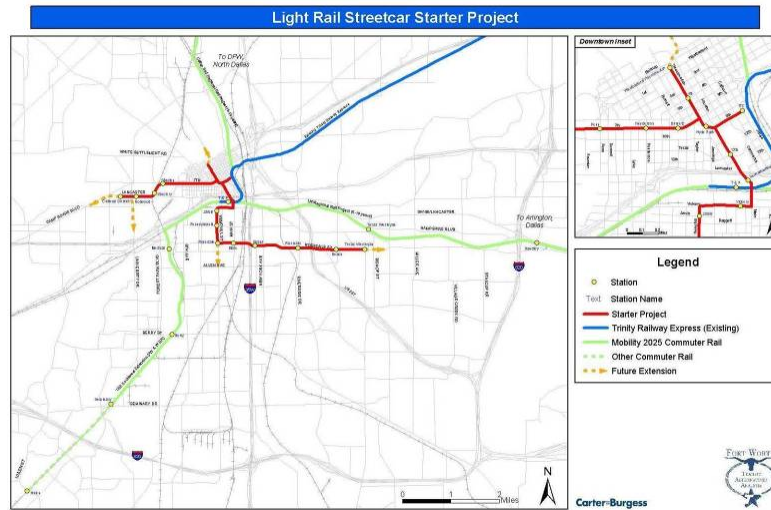
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# Fort Worth Transit Alternatives Analysis

1998

2002

2008



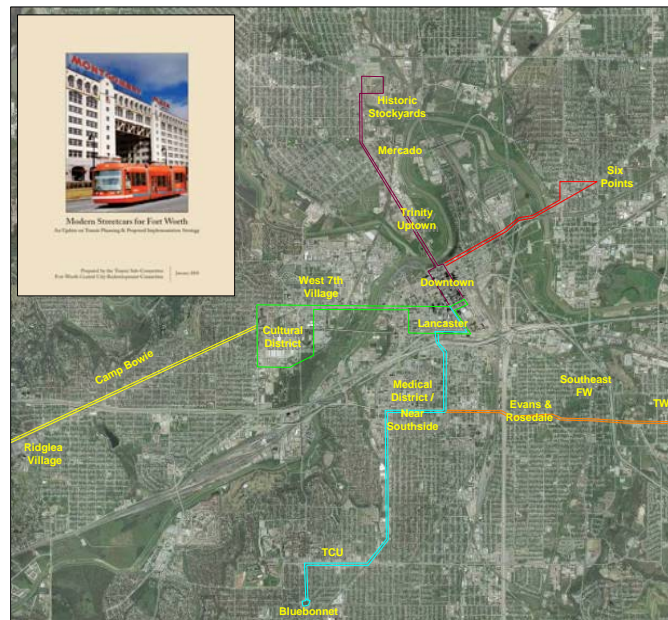
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## Modern Streetcars for Fort Worth

1998

2002

2008



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## Portland Streetcar



## Portland Streetcar (cont.)

- Service
  - Started: **2001**
  - Weekday ridership: over **11,800**
  - Annual ridership: **3.6 million**
  - **8-mile** continuous loop
  - **46** stations
  - **12-minute** headways
  - Stations spaced every **3 to 4** blocks
  - **Connects** with the MAX regional light rail system



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## Portland Streetcar (cont.)

- Cost

- Total capital expenditures to date: **\$103.2 million** for **4 miles** double-tracked.
- **\$12.9 million** per track mile
- **\$146 million** Loop Project to extend streetcar service an additional **3.3 miles**.



- Funding

- Local improvement districts
- Tax increment financing district
- Parking revenues
- Parking garage bonds



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## Portland Streetcar (cont.)

- Economic Development – Portland

- **\$3.5 billion** invested in development along route since 1997.
- **Pearl District** and **South Waterfront** District revitalized.
- **7,248** housing units constructed within 3 blocks of route **since 1997**.
- **3,000** additional housing units completed by **2010**.



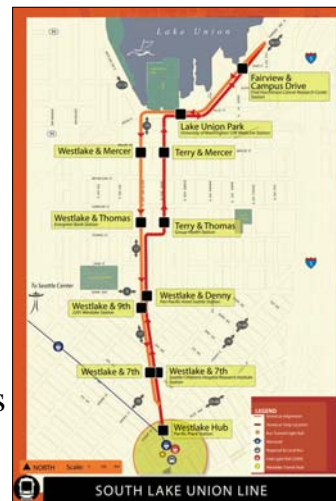
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## Seattle Streetcar



## Seattle Streetcar (cont.)

- Service
  - Started: **2007**
  - Projected 2008 ridership: **380,000**
  - Projected future annual ridership: **1.1 million**
  - **1.3-mile** route; double-tracked
  - **11** stations
  - **15** minute headways
  - Stations spaced every **2 to 4** blocks
  - Plans to **expand** streetcar service throughout central city



## Seattle Streetcar (cont.)

- Cost

- Total capital expenditures to date:  
**\$52.1 million** for **1.3 miles** double tracked.



- Funding

- Local improvement districts
- Federal and State grants
- Property sales proceeds



## Seattle Streetcar (cont.)

- Economic Development

- **2.4 million** square feet of commercial space
- **1,850** housing units
- **7,000** jobs created
- Major employers:
  - Amazon Corporate Headquarters
  - Microsoft
  - University of Washington Medical Research Center
  - Cancer Research Center



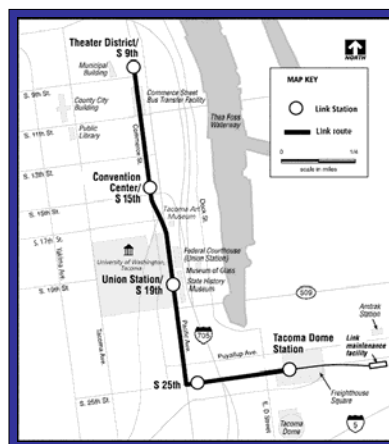
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## Tacoma—Link Streetcar



## Tacoma—Link Streetcar (cont.)

- Service
  - Started: **2003**
  - Annual Ridership: **900,000**
  - **1.3-mile** route; partially double-tracked
  - **5** stations
  - **15** minute headways
  - Built to be **compatible** with Sound Transit **Light Rail System**
  - **Free** to ride



## Tacoma—Link Streetcar (cont.)

- Cost
  - Total cost: **\$78.2** million for 1.3 miles double-tracked
    - Construction costs higher due to being built to Light Rail standards
- Funding
  - Voter approved, \$3.9 billion Sound Transit regional bus and rail plan
- Economic Development
  - 2,000 residential units permitted adjacent to the route



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## Study Committee: Phase 2 Tasks

The study committee has determined that a streetcar system **is desirable** for Fort Worth.

It is now **identifying**:

- A **starter corridor**.
- Potential **funding sources** and prepare a preliminary **funding strategy**.
- **Next steps** for implementation.



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## What makes a successful Starter Corridor?

- **Walkable Urbanism – The Pedestrian Comes First**
- **Link Destinations – For Visitors and Locals**
- **Support Existing Retail and Active Uses**
- **Attract New Riders To The Regional System**
- **Good for Short Trips...Make Transit Practical**
- **Encourage Development...“The Place to Be”**

*Source: HDR, Inc.*

### Walkable Urbanism – The Pedestrian Comes First



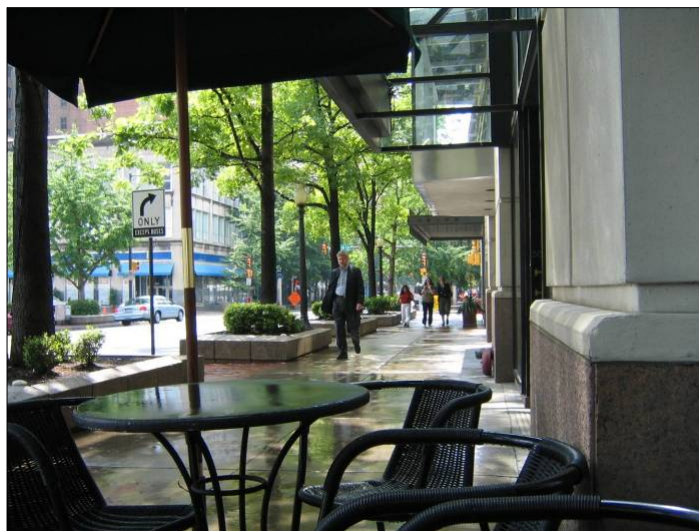
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## Link Destinations – For Visitors and Locals



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## Support Existing Retail and Active Uses



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## Attract New Riders To The Regional System



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## Good for Short Trips...Make Transit Practical



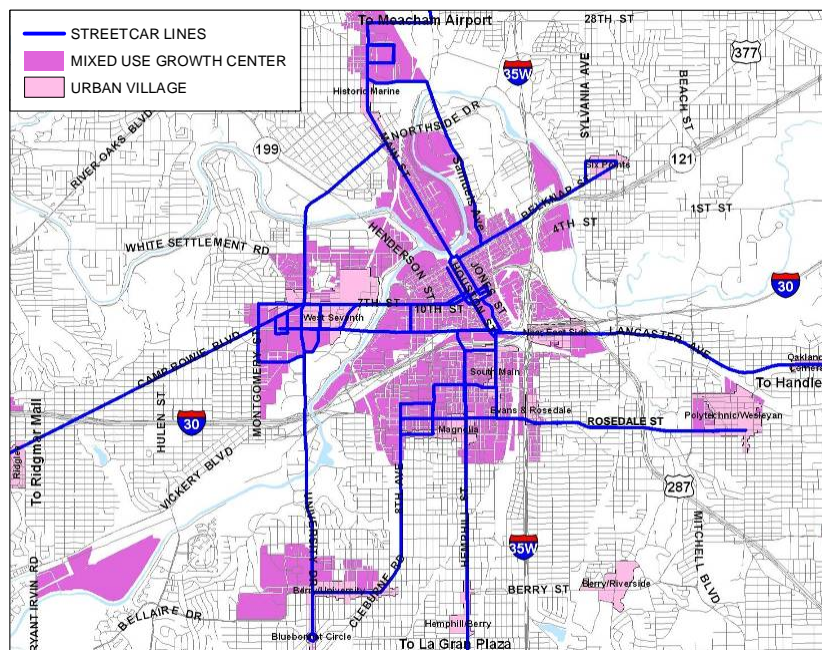
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## Encourage Development...“The Place to Be”



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## Streetcar Routes Considered



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## Evaluation Criteria

- Location of existing **employment sites**, multifamily development and other **destinations**
- Current **bus ridership**
- Projected population and employment **density**
- Location of **mixed-use** growth centers and **urban villages**
- Development **potential** based on underutilized land



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## Evaluation Criteria (cont.)

- Announced **development** activity
- **Financing** potential
- **Roadway** considerations
- **Bridge** crossings and clearances
- Pedestrian and bicycle **experience**



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## Evaluation Criteria (cont.)

Each route received a rating and score for each criterion.

High – Medium – Low

**5                      3                      1**

West 7<sup>th</sup>   W Lancaster   E Lancaster   E Rosedale   S Hemphill   S Main

	Current Mixed-Use Zoning MU-1,MU-2,TU,NS,H Districts	45.0%	18.0%		22.0%	24.7%		98.3%	92.4%
	Rating	Medium	Low		Low	Low		High	High
	Score	3	1		1	1		5	5

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## Corridor Evaluation

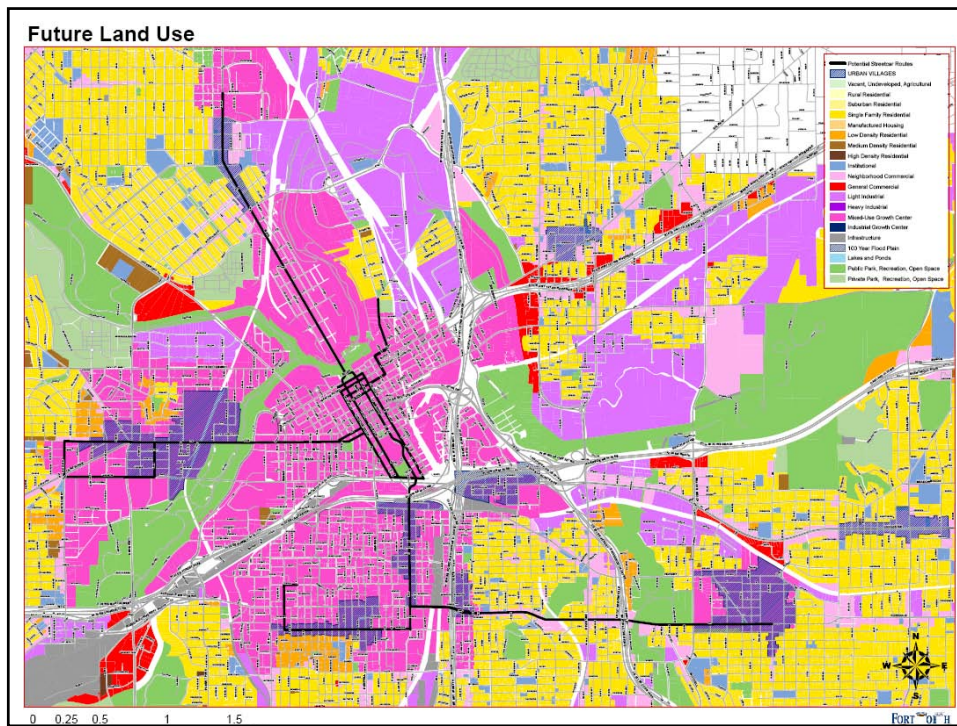
## Primary Corridors

- **North Main**
- Samuels
- **West 7<sup>th</sup>**
- West Lancaster
- **East Rosedale**
- East Lancaster
- **South Main**
- South Hemphill

Modern Streetcar Corridor Criteria										
Criteria	Corridor									
	West Options		East Options		South Options		North Options			
	West 1st	West Lancaster	E. Lancaster St & N. Main St	E. Main St & N. Main St	South Hargett	South Main	North Main	North 1st		
2010 Proposed Population Density (per acre)	7.3	5.7	3.4	4.9	5.2	5.5	2.5	4.8		
Rating	High	Low	Low	Medium	High	Medium	Low	Medium		
2010 Proposed Employment Density (per acre)	22.7	21.9	10.7	9.1	26.1	36.9	10.0	1.8		
Rating	High	Medium	Low	Low	High	High	Low	Low		
Current Mixed-Use Density (per acre)	45.0%	10.0%	22.0%	24.7%	58.0%	92.4%	47%	15%		
Rating	Medium	Low	Low	Medium	High	High	Medium	Low		
Future Land Use Potential (within 1/4 mile of station and within 1/2 mile of other stations)	51.0%	79.0%	27.0%	34.0%	58.0%	94.0%	69%	40%		
Rating	Medium	Medium	Low	Low	High	High	Medium	Low		
Destinations (Transit, Commercial and Retail within 1/4 mile)	19	12	0	3	11	6	8	9		
Rating	High	High	Low	Medium	Medium	Medium	Medium	Medium		
2	Integrated Potential									
	Land Imperviousness (Land area per Street mi.)	35	36	50	56	46	70	75.6	46	
	Neighborhood Potential (Land area per Street mi.)	10	10	30	36	30	30	37.5	36.2	
	Location per Street mi.	0	0	10	10	7	3	0	1.1	
	Total Impervious Area (per Street mi.)	36	36	60	69	62	79	79.6	47.3	
	Rating	Medium	Low	Low	Medium	High	High	High	Medium	
	3	Accessed Development								
		# of Properties	9	9	4	2	6	9	9	9
		Rating	High	Low	Low	Low	High	High	High	High
	4	Future Planning Potential								
Rating		Medium	Low	Low	Low	High	High	Medium	Medium	
5		Feasible Contributions								
	Rating	Med. - High	Med. - High	Medium	Med. - High	Med. - High	Med. - High	Med. - Low	Med. - Low	
	6	Single Crossing / Overhead Issues								
# of Crossings (Lane)		1	1	3	2	1	0	1	1	
# of Crossings (Lane)		1	1	3	2	1	0	1	1	
7	PublicSpace Experience									
	Rating	High	Medium	Low	Medium	Medium	Medium	Medium	Medium	
	8	Existing Bus Stationing								
Stops		107	1,492	203	423	423	214	107	107	
Rating		Medium	Low	High	Low	Medium	Medium	Medium	Medium	
TOTAL		46	27	19	23	49	47	50	39	

Students will receive consideration for a degree transfer as highlighted in 1001.10.

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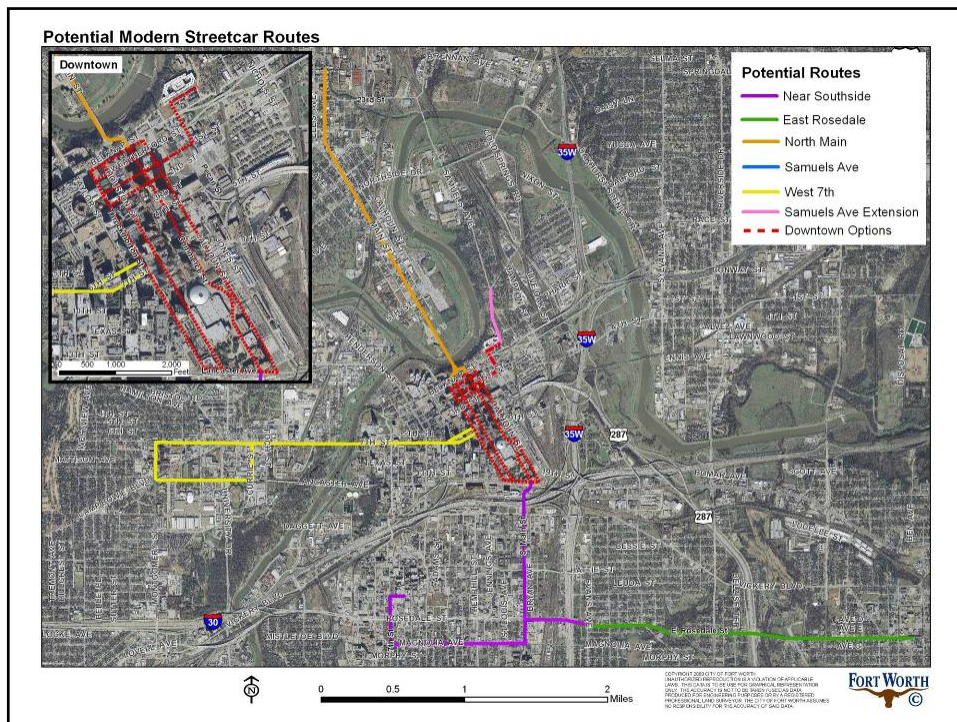


## Starter Corridor Costs

### Assumptions

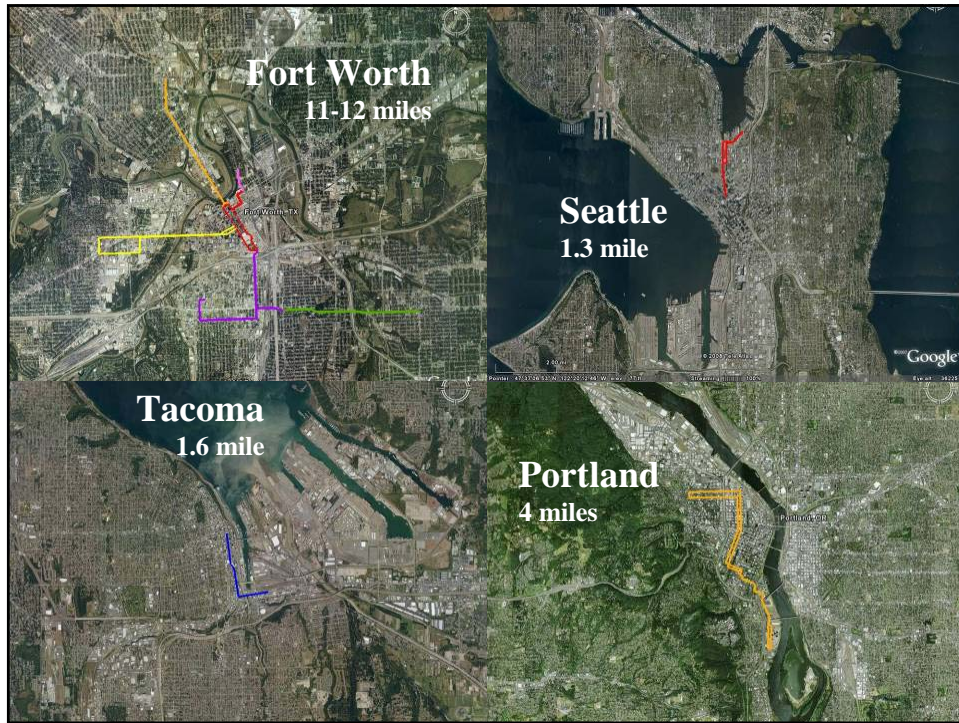
- **\$20 million** per **track** mile
- Mostly **double**-tracked
- Includes cost of **vehicles**, maintenance facility, relocation of utilities, etc.
- Each route could have cost **variables** such as roadway considerations, **bridge crossings** and clearances, etc.





## Starter Corridor Costs (cont.)

- Estimated cost by study route:
  - Downtown** \$50-60 million
  - North Main** \$90-100 million
  - Near Southside** \$100-110 million
  - East Rosedale** \$90-100 million
  - West 7<sup>th</sup>** \$90-100 million



## Starter Corridor Capital Funding Sources

Funding Source	Authorization	Participation Probability High – Medium - Low
NCTCOG (Regional Toll Revenue, Federal Transportation Funding, etc.)	Regional Transportation Council	High
Tax Increment Financing	City Council, Taxing Entities	High
Public Improvement District	City Council, Property Owners	Medium
Bond Program/Certificates of Obligation	Voters/City Council	Medium
Gas Well Revenue	City Council	Medium
The T	Board of Directors	Medium
Hotel Occupancy Tax	City Council	Medium
Private Partner Funding – TWU, TCU, Hospitals, COC's, DFWI	Partner	Medium
Public Partner Funding – Tarrant County, Tarrant County College, UNT, FWISD, FWCVB	Partner	Medium
Incremental Sales Tax	City Council	Low

## Starter Corridor Operating Funding Sources

Funding Source	Authorization	Participation Probability High – Medium - Low
The T	Executive Board of Directors	High
City of Fort Worth	City Council	High
Farebox Revenue	Owner, Operator	High
Bulk Sale of Transit Passes		High
Sponsorships	Owner, Operator	High
Advertising	Owner, Operator	High
Special Event Promotions	Owner, Operator	High
Membership Programs	Owner, Operator	High
System Naming Rights	Owner, Operator	Medium
Public Partner Funding – Tarrant County, Tarrant County College, UNT, FW CVB, FISD	Partner	Medium
Private Partner Funding – TWU, TCU, Hospitals, Chamber of Commerce, DFWI	Partner	Medium
Parking Revenues	City Council	Medium
Local Option Transportation Fees and Taxes	Voters, State Legislature	Medium

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## Hypothetical Financing Scenarios

	Small Starter Option	Large Starter Option
<b>Costs (millions)</b>	<b>\$100.0</b>	<b>\$250.0</b>
<b>Funding (millions)</b>		
TIFs	\$50.0	\$75.0
PIDs	\$5.0	\$14.0
HOT 1/2 cent increase	\$0.0	\$10.0
Regional Funds	\$5.0	\$15.0
Gas Well	\$15.0	\$30.0
Private Funds	\$2.0	\$7.0
City	\$15.0	\$30.0
County	\$3.0	\$5.0
<b>Gap*</b>	<b>\$5.0</b>	<b>\$64.0</b>
<b>TOTAL</b>	<b>\$100.0</b>	<b>\$250.0</b>

\* Gap funding sources include increasing the bond allocation, increasing gas well allocation, increasing regional funds and seat surcharges

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**Questions?**  
**Comments?**

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